

Serial No.: 09/344,526

Filed: June 24, 1999

The Commissioner is authorized to charge any fees, including extension fees or other relief which may be required, or credit any overpayment to Deposit Account No.06-1300 (Our Order No. A-66828-2/RMS/DCF/SRN).

### AMENDMENTS

#### In the claims

Please cancel claim 29.

8. (Amended) A method of decoding an array composition comprising
  - a) providing an array composition comprising:
    - i) a substrate with a patterned surface comprising discrete sites; and
    - ii) a population of microspheres comprising at least a first and a second subpopulation, wherein each subpopulation comprises a bioactive agent and do not comprise an optical signature;wherein said microspheres are randomly distributed on said surface;
  - b) adding a plurality of decoding, binding ligands to said array composition to identify the location of at least a plurality of the bioactive agents.
9. (Amended) A method according to claim 8 wherein at least one subpopulation of microspheres comprises an identifier binding ligand to which a decoding, binding ligand can bind specifically.
10. (Amended) A method according to claim 8 wherein said decoding, binding ligands bind specifically to said bioactive agents.
13. (Amended) A method of determining the presence of a target analyte in a sample comprising:
  - a) contacting said sample with a composition comprising:
    - i) a substrate with a patterned surface comprising discrete sites; and
    - ii) a population of microspheres comprising at least a first and a second subpopulation each comprising a bioactive agent and do not comprise an optical signature;wherein said microspheres are randomly distributed on said surface such that said discrete sites contain microspheres; and
  - b) determining the presence or absence of said target analyte.
  - c) adding a plurality of decoding, binding ligands to said array composition to

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identify the location of at least a plurality of the bioactive agents.

14. (Amended) A method of determining the presence of a target analyte in a sample comprising:

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a) contacting said sample with a composition comprising:

i) a substrate with a surface comprising discrete sites; and

ii) a population of microspheres comprising at least a first and a second subpopulation each comprising:

1) a bioactive agent; and

2) an identifier binding ligand that will bind a decoder binding ligand such that the identification of the bioactive agent can be elucidated;

wherein said microspheres are randomly distributed on said surface such that said discrete sites contain microspheres; and

b) determining the presence or absence of said target analyte.

c) adding a plurality of decoding, binding ligands to said array composition to identify the location of at least a plurality of the bioactive agents.

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16. (Amended) A method of making a microsphere array comprising:

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a) contacting a substrate with a surface comprising discrete sites with a solution comprising a population of particles, wherein said particles do not comprise an optical signature; and

b) applying energy to said substrate or said solution, or both, such that at least a subpopulation of said particles randomly associate onto sites.

30. (Amended) A method according to claim 8, 13 or 14, wherein each of said decoder binding ligands comprise the same label, and wherein detection of said label results in the identification of the bioactive agent.

31. (Amended) A method according to claim 8, 13 or 14, wherein a first population of said plurality of decoder binding ligands comprises a first label and a second population of said decoder binding ligands comprises a second label.

32. (Amended) A method according to claim 8, 13 or 14, wherein a first population of decoder binding ligands is contacted with the array to identify the location of at least a first population of bioactive agents; and  
subsequently, a second population of decoder binding ligands is contacted with